

RETURN TO THE 1999 DATA FILE

Guide to Mortality Analysis Using The Tenth Revision of the International Classification of Diseases (ICD-10)

In the United States the statistical analysis of mortality is generally conducted following standards established by the World Health Organization (WHO). These standards are published in the International Classification of Diseases (ICD), which has been revised this century about every 10 years. Below is a chronology of ICD Revisions this century, which shows that the latest Revision, ICD-10, actually was not adopted until the 9th Revision had been in place twenty years.

ICD IMPLEMENTATION DATES IN U.S.

Revision	Years in Effect
First (ICD-1)	1900-1909
Second ICD-2)	1910-20
Third (ICD-3)	1921-29
Fourth (ICD-4)	1930-38
Fifth (ICD-5)	1939-48
Sixth (ICD-6)	1949-57
Seventh (ICD-7)	1958-67
Eighth, Adapted (ICDA-8)	1968-78
Ninth (ICD-9)	1979-1998
Tenth (ICD-10)	1999-

The ICD is revised periodically to account for advances in medical knowledge and disease terminology. As was the case with past Revisions, ICD-10 includes new categories of mortality as well as changes to the internationally recognized rules for coding the underlying cause of death from the medical certification that appears on death certificates.

A new Revision of the ICD can be the source of discontinuities in statistical trends in cause-specific mortality. In order to provide analysts with a tool to understand the statistical impact of a new ICD Revision the National Center for Health Statistics (NCHS) provides “comparability ratios.” These result from the double-coding of a sample of death certificates, once according to the old ICD Revision and again according to the new Revision. For the implementation of ICD-10 NCHS coded 1.8 million death certificates from 1996 first using ICD-9 and then using ICD-10. Based on that double-coding NCHS has produced the set of Comparability Ratios for 113 Selected Causes of Death. Each ratio is an expression of the results of the comparison as a ratio of deaths for a cause of death by the later revision divided by the number of that cause of death coded and classified by the earlier revision.

NCHS recommends that the comparability ratios be used in statistical analysis of cause-specific mortality over time by presenting the 1999 death rate for a given cause of death, and then adjusting death rate for earlier years by multiplying the earlier rate by the comparability ratio for that cause of death. Both crude and age-adjusted mortality rates can be comparability adjusted by the same method. Some of the impact of ICD-10 on cause-specific mortality for Utah can be seen in the Table, Leading Causes of Death, Utah 1999, With Comparability-adjusted Rates for 1998.

A more detailed discussion of the implementation of ICD-10 can be found on the NCHS Website at www.cdc.gov.nchs/about/major/dvs/icd10des.htm. Analysts interested in such topics as testing the statistical significance of changes in cause specific mortality across ICD revisions will find sample formulas for such analyses there.

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